F/A-18 E/F UPGRADES

ACTIVE ELECTRONICALLY SCANNED ARRAY – AESA

Navy ACAT IC Program		**Prime Contractor**
Total Number of Systems:	258 (192 potential retrofit)	Raytheon
Total Program Cost (TY$):	$403M RDT&E $1.13B (APN-1)	

ATFLIR

Navy ACAT II Program		**Prime Contractor**
Total Number of Systems:	547	Boeing
Total Program Cost (TY$):	$1.1B	Raytheon (Major Subcontractor)
Average Unit Cost (TY$):	$1.9M	

SYSTEM DESCRIPTION & CONTRIBUTION TO JOINT VISION 2010

The F/A-18E and F Super Hornet, single and dual seat respectively, will be advanced derivatives of the F/A-18 C/D now in operational service with the Navy, Marine Corps, and several foreign countries. Designed to overcome existing deficiencies in F/A-18 C/D range, specifically endurance and carrier bring-back payload, the new design will feature a larger airframe with more fuel capacity and two additional store stations. It will also have a reduced radar signature, advanced engines, extensive use of composites, and

improvements to some avionics and displays. The projected firepower from Super Hornets operating from aircraft carriers is a key contributor to the ***Joint Vision 2010*** concepts of ***dominant maneuver*** and ***precision engagement***.

Individual Upgrade Descriptions:

Active Electronically Scanned Array (AESA): AESA represents the last of three preplanned upgrades to the F/A 18 radar and is being developed to dramatically increase F/A-18E/F warfighting capability. It should provide significant lethality and survivability enhancements for the aircraft and should also provide greatly improved ECCM performance, and enhanced signature characteristics. It will correct current APG-73 hardware and software deficiencies and lack of growth capability. It will also permit a fully decoupled cockpit in the F/A-18F substantially increasing multi-mission effectiveness by allowing both crewmen to perform different missions simultaneously with the same weapons system.

Advanced Targeting Forward Looking Infrared (ATFLIR): The existing AN/AAS-38B FLIR pod has known deficiencies in magnification and resolution resulting in insufficient performance for target location and precise aimpoint selection outside threat envelopes, particularly from higher altitudes. ATFLIR will incorporate "GEN III" sensor technologies intended to maximize air-to-ground targeting performance. Testing will begin in FY99 with Milestone III and IOC in FY02.

BACKGROUND INFORMATION

Government and Industry have been working since 1992 on AESA requirements and technical definition. DARPA, JSF, ONR, and USAF programs significantly reduced technical and affordability risks for this type of system. AESA for the F/A-18E/F will correct APG-73 deficiencies and support operational requirements. Provisions for growth to support AESA is already embedded in the F/A-18E/F. Boeing has total system performance responsibility for integrating the AESA radar system into the aircraft and competitively selected Raytheon as the AESA supplier. The process fully utilizes Boeing Integration expertise and Supports Acquisition Reform Initiatives.

- Sep 97: Boeing sent RFI's to all suppliers with fighter aircraft fire control radar experience to assess sole-source/competition.
- Jul 98: Decision to formally compete radar subcontract through Boeing.
- Dec 98: PBD 752 adds $660M in FY00-05 to partially fund AESA program.
- Apr 99: AESA fully funded in FYDP with PBD752 and PR01 submit.
- Apr 99: Acquisition strategy approved by ASN (R,D&A).
- Jul 99: USD(A&T), OSD(C) Decision to Proceed with New Start Notification to Congress.

Because of the importance of AESA as a roadmap system for the F/A-18E/F aircraft, DOT&E has placed it under oversight. AESA is a multi-phase program. In Phase I (Pre-E&MD Activities and Prototype Development) Boeing will conduct competitive source selection for radar system subcontract under advanced agreement. Agreement for prototype development (FY99-FY01) will include commercial development and amortization provisions. In Phase II, EMD program/contract will support a

Milestone II decision in FY01. Phase III: E&MD (January 2001-July 2006) Phase IV comprises LRIPs I, II, & III (FY03, FY04 & FY05), comprising 42 units (FY03-08, FY04-12, FY05-22). Phase V is Full-rate production (FY06).

TEST & EVALUATION ACTIVITY

ATFLIR test planning efforts for this new upgrade program are ongoing. Noise and vibration testing for ATFLIR is scheduled for spring FY00. Software Builds 1 and 2 are completed ATFLIR mass model delivered and supported weapon separation, propulsion, and loads on F/A 18 aircraft. EDM 1 delivered to Boeing Avionics Integration Lab for avionics testing in support of first flight. EDM 2 completed and is being prepared for ATFLIR first flight.

The Fleet Training Unit Decision is in November 1999, with two training pods for VFA 122—the F/A-18E/F standup squadron. First flight of the EMD pod and start of the DT-IIB Test Phase is also scheduled for November 1999. OT-IIA (first OT) is May/June 2000, comprising 20 E/F flights and 20 C/D flights. LRIP-I Decision is July 2000, with a quicklook from OT-IIA. OT-IIB (OPEVAL) is scheduled for September 2001-February 2002, comprising 45 E/F flights and 45 C/D flights. ATFLIR is scheduled to deploy with the first E/F squadron cruise in June 2002.

TEST & EVALUATION ASSESSMENT

Due to the Navy's desire to achieve IOC with ATFLIR in time for the first deployment of the F/A-18E/F, the development effort time is being compressed. Since Product Verification Testing is scheduled concurrent with OPEVAL, the majority of operational effectiveness testing will be conducted with EMD pods "reconfigured to the production configuration." However, at least one production pod (LRIP 1) will be included as part of overall OPEVAL. Although not an ideal situation from the OT perspective, DOT&E accepts this agreement and will ensure that the EMD pods are "production representative."